tube such that its center line (cl12) lies along an extension of the center line (cl10) of the starter tube. This ensures that, when the preform is subsequently mounted in an apparatus to form optic fibers, the preform will rotate uniformly and evenly. The exhaust tube 12 is also designed to have a larger diameter than starter tube 10 to ensure that gases escaping from the starter tube and deposited along the inner surfaces of the exhaust tube do not unduly narrow the path for the escaping gases.

IN THE CLAIMS:

Please cancel claims 9-11 without prejudice or disclaimer to the subject matter contained therein.

Please amend the claims as follows:

1. (Amended) An apparatus for shaping a selected end region of a hollow cylindrical glass tube used in the manufacture of optic fibers comprising:

a support device for holding the tube at a second region other than the selected end region and for rotating the tube in a controlled manner;

a heat source adapted to supply sufficient heat to the selected end region of the tube to render said tube malleable;

an internal mold having an exterior surface for supporting and shaping the inner surface of the selected end region of the tube when the tube is rendered malleable;

an insertion device for inserting said internal mold within said selected end region of the tube, prior to the application of heat to the tube, wherein said insertion device includes at least one of a sleeve and a handle; and

an exterior molding device for compressing the exterior surface of the selected end region of the tube and for shaping the exterior surface of the selected end region of the tube when rendered malleable, and for, concurrently causing the shape of the inner surface of the selected end region of the tube to conform to the exterior surface of the internal mold, wherein said exterior molding device includes at least one of an exterior mold and a paddle.

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2. (Amended) The apparatus as claimed in claim 1, wherein said internal mold is collapsible between an open and extended configuration and a closed and collapsed configuration.

3. (Amended) The apparatus as claimed in claim 2, wherein said apparatus further comprises:

an activation device for setting the internal mold to its extended configuration, and for setting the internal mold to its collapsed configuration for withdrawing the mold from the tube through an opening in the selected end region, wherein said activation device includes at least one of an air cylinder, a spring-loaded mechanism, and a motor.

4. (Amended) The apparatus as claimed in claim 3, wherein setting the internal mold to its collapsed configuration causes the internal mold to occupy a volume smaller than an extended volume when in the extended configuration in order to enable the mold to be easily retracted from the selected tube end.

5. (Amended) An apparatus for shaping a selected end region of a hollow cylindrical glass tube used in the manufacture of optic fibers comprising:

a support device for holding the tube at a second region other than the selected end region and for rotating the tube in a controlled manner;

a heat source adapted to supply sufficient heat to the selected end region of the tube to render said tube malleable;

an internal mold having an exterior surface for supporting and shaping the inner surface of the selected end region of the tube when the tube is rendered malleable;

an insertion device for inserting said internal mold within said selected end region of the tube, prior to the application of heat to the tube, wherein said insertion device includes at least one of a sleeve and a handle; and

an multi-part, exterior mold for compressing the exterior surface of the selected end region of the tube and for shaping the exterior surface of the selected end region of the tube when rendered malleable, and for, concurrently

causing the shape of the inner surface of the selected end region of the tube to conform to the exterior surface of the internal mold.

6. (Amended) The apparatus as claimed in claim 1, further comprising a mechanically actuated holding device for holding the exterior mold and for selectively applying the exterior mold to an outer periphery of the selected end region of the tube when the tube is rendered malleable, said internal mold cooperatively supporting an inner wall of the tube and controlling the shape of an inner diameter of the tube.

7. (Amended) An apparatus for shaping a selected end region of a hollow cylindrical glass tube used in the manufacture of optic fibers comprising:

a support device for holding the tube at a second region other than the selected end region and for rotating the tube in a controlled manner;

an internal mold for shaping an inner surface of the selected end region of the tube, said internal mold being selectively operable and collapsible between an open and extended configuration and a closed and collapsed configuration;

an insertion device for inserting said internal mold within said selected end region of the tube and for setting the internal mold in its extended configuration;

a heat source supplying heat to the selected end region of the tube to render the tube malleable; and

at least one of an external mold and a paddle for compressing the exterior surface of the selected end region of the tube when rendered malleable, and for concurrently causing the shape of an inner surface of the tube to conform to the exterior surface of the internal mold.

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8. (Amended) The apparatus as claimed in claim 7, further comprising an activation device for setting the internal mold to its extended configuration and for setting the internal mold to its collapsed configuration for withdrawing the mold from the tube through an opening in the selected end region, wherein said activation device includes at least one of an air cylinder, a spring-loaded mechanism, and a motor.

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12. (Amended) An apparatus for shaping a selected end region of a hollow cylindrical glass tube used in the manufacture of optic fibers comprising:

a support device for holding the tube at a second region other than the selected end region for rotating the tube in a controlled manner;

an internal mold for shaping an inner surface of the selected end region of the tube, said internal mold being selectively operable and collapsible

between an open and extended configuration and a closed and collapsed configuration;

an insertion device for inserting said internal mold within said selected end region of the tube and for setting the internal mold in its extended configuration;

a heat source supplying heat to the selected end region of the tube to render the tube malleable;

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an external mold for compressing the exterior surface of the selected end region of the tube when rendered malleable, and for concurrently causing the shape of an inner surface of the tube to conform to the exterior surface of the internal mold; wherein said external mold includes a pair of side pieces for imparting an oblate, cone-like shape to inner and outer diameters of the tube along the selected end region while leaving an opening between the side pieces for enabling a withdrawal of the external mold when set to the collapsed configuration;

a mechanically actuated holding device for supporting the external mold; and

a temperature sensing device for sensing the temperature of the selected end region of the tube.

13. (Amended) The apparatus as claimed in claim 12, wherein the temperature sensing device is a pyrometer producing an actuating signal

coupled to the mechanically actuated holding device when the temperature of the selected end portion is such that the end portion is in a malleable state.

14. (Amended) The apparatus as claimed in claim 13, wherein the heat source is a torch and wherein said actuating signal produces a signal for removing the torch when the exterior mold is applied to the selected end portion of the tube.

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15. (Amended) The apparatus as claimed in Claim 14, wherein said temperature sensing device controls the intensity of the heat source being applied to the selected end portion of the tube.

16. (Amended) The apparatus as claimed in Claim 8, wherein the tube is a first tube and wherein the variable configuration mold and the exterior mold shape the opening of the first tube to enable a second tube to be inserted within the first tube and permit the alignment of the first and second tubes along a common center line.

17. (Amended) The apparatus as claimed in Claim 7, wherein the support device is a lathe.

18. (Amended) The apparatus as claimed in Claim 7, further including an optical sensing device for sensing a physical condition of the tube.

19. (Amended) A method for shaping a selected end of a hollow cylindrical tube comprising the steps of:

positioning the tube within a support device and rotating the tube;

inserting an internal mold within the selected end region of the tube to support the tube end when the tube is being shaped and for controlling the shape of an inner surface of the tube end, wherein the internal mold is operatively collapsible between an extended and open configuration and a collapsed and closed configuration;

heating the selected end of the tube with a heat source until the selected end becomes malleable; and

compressing the exterior surface of the selected end region of the tube for concurrently shaping the exterior and inner surfaces of the selected end region of the tube into a predetermined form, wherein the exterior surface of the selected end region is compressed with at least one of an exterior mold and a paddle.

20. (Amended) [A] The method as claimed in claim 19, wherein the step of inserting the internal mold includes a step of setting the internal mold to its

open configuration before and during a period in which heat is applied to the selected end of the tube.

21. (Amended) The method as claimed in claim 20, wherein the step of compressing the exterior surface of the selected end region of the tube for concurrently shaping the exterior and inner surfaces of the selected end region of the tube includes a step of applying the external mold to the selected end of the tube when the selected end becomes malleable.

22. (Amended) A method for shaping an opening and an end region at a selected end of a cylindrical tube comprising the steps of:

holding a portion of the tube other than the selected end, and rotating the tube;

inserting an internal mold into the selected end of the tube for supporting the end of the tube and for shaping the inner surface of the tube;

applying a heat source to the selected end of the tube until the selected end becomes malleable;

sensing the temperature of the selected end of the tube; and

applying an exterior mold to the outer periphery of the tube along the selected end in response to sensing a certain temperature for tapering the selected end of the tube and gradually reducing the inner diameter of the tube from a second value to a first value.

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23. (Amended) The method as claimed in claim 22, wherein said internal mold is a mold having a selectively alterable shape.